LOUISIANA, 27, PLAQUEMINES

FIELD APPRAISAL ANALYSIS

Prepared by
Program Analyst
Office of the Administrator
RURAL ELECTRIFICATION ADMINISTRATION

Field Appraisal
Completed in
January 1952

****
****
******
***
*

August 8, 1952

Program Analyst
Office of the Administrator

SUMMARY AND CONCLUSION

AREA CHARACTERISTICS

No appreciable growth in population of this area can be expected. Except for a little cattle grazing along the banks of the Mississippi River, the area is devoid of farming. All places to be served are accessible by boat only; no roads are in the area. To bring power to the area, several crossings of the Mississippi River and the Passes will require the use of expensive submarine cable. Major income sources are employment with government agencies, oil companies, and pilot associations, and, to some extent, hunting, fishing and trapping. The oil potential of the delta and off-shore region is unquestionably great. The area is subject to occasional hurricanes. Mild, almost tropical, climate prevails throughout the year.

ULTIMATE NUMBER OF CONSUMERS

The loan application lists 173 prospective consumers which are composed of 121 residences, 13 small commercials, 24 navigational lights, and 13 large power users. Since several homes were noted to be vacant, the appraiser believes that the number of residences that are likely to take service would be about 90. Considering this, the total number of consumers would be reduced to 142.

ESTIMATED FUTURE CONSUMPTION OF ELECTRICITY

Residential consumers at Burrwood, who are now receiving central station service from the U. S. Engineer Department generating plant, averaged 59 kwh per month in 1950 and 108 in 1951. The present consumption is 20 percent greater than that indicated by replies from the sample in this group. The indicated future consumption of 109 kwh per month, when increased by 20 percent, is 131.

Residential respondents at Pilottown, who now have only low voltage service from small home electric generators, indicated that their future consumption (3 years after receiving central station service) would be 79 kwh per month. When this average is properly weighted and adjusted, the over-all kwh average for residential consumers is 115.

Nearly all electric consumption by residential consumers will be in connection with home appliances and uses. Refrigerators, house lighting, and cabinet freezers will account for about one-fifth each of the total residential load.

The experience of the U. S. Engineer Department with regard to generating their electricity, and the expected high cost of line construction and maintenance precludes the possibility to provide service to the residential

consumers at a rate as low as the Burrwood residents now enjoy. LP gas, kerosene, diesel fuel or gasoline are now used for cooking and heating, and none of the respondents indicated that they planned to change to electricity for these purposes.

Based on all factors believed to be significant, this analysis leads to the following estimates, which are certified as being reasonable and may be expected to be attained by the years specified, provided the system is energized in calendar year 1952.

Class of Consumer	Calendar Year 1951	1954	1957	1962
Town residential	108 1/	115	150	200

1/ Average for Burrwood consumers. No billing record data available from other residential consumers in the area.

E. C. Weitzell, Program Analyst
Office of the Administrator

August 8, 1952

Program Analyst
Office of the Administrator

ANALYSIS OF BASIC FACTORS RELATING TO THE RURAL ELECTRIFICATION LOAN FOR LOUISIANA 27 PLAQUEMINES

This analysis of probable future consumption of electricity for the Plaquemines Electric Cooperative Association was prepared by Arthur S. Hiatt, Agricultural Economist, Office of the Administrator, and is based on a field study completed by Mr. Hiatt in January 1952. The field study was made in connection with the processing of this Association's application for an "A" section loan to be used to construct the necessary electric distribution facilities to serve the establishments and residents located in the extreme southern portion of the Mississippi River Delta in lower Plaquemines Parish, Louisiana. (Figure 1 and Figure 2.) The field work consisted primarily of visits to 30 prospective residential consumers and conferences with representatives of several potential large power users and other interested parties.

ULTIMATE NUMBER OF CONSUMERS

No expansion of the service area can be expected since it is bounded on the north by the area served by the Peoples Utility Company, and in all other directions by the Gulf of Mexico. Any increase in the number of consumer units would depend largely upon continued exploration and development of the area's oil production potential, and any increase in national defense activity in the area. The uncertain status of tidelands oil is reported as being a major deterrent to increased oil well drilling at the present in the area. No appreciable increase in the national defense programs in the area is expected in the foreseeable future. It, therefore, appears reasonable to assume that the ultimate number of consumer units will not exceed the number reported to exist in the area at the present time.

Material submitted with the loan application listed 173 prospective consumers, of which 121 were rural nonfarm residences, 13 were small commercial users, 24 were navigational lights along the river and passes, and 13 were large power users. Of the 121 residences listed as prospective consumer units, all were reported vacant at the time the application was submitted. Although prospective industrial users had expressed interest in receiving electric power when it became available, none of them had signed membership agreements. Government establishments in the area are very much interested in getting electric power at a lower cost to them.

Because of the difficulty in reaching the isolated areas, the appraiser confined his contacts, with respect to residences, to the two main communities, Pilottown and Burrwood, in which places he noted 20 vacant homes. Also, he was advised that several of the other houses were occupied only a portion of the year. (Figure 3 and Figure 4.) The appraiser believes that the number

of residential consumers submitted by the Association is highly optimistic and that a more realistic figure would be about 90. The number of commercial users that are reported to be interested in taking service appears to be reasonable. On the basis of information obtained during the field study, it is believed that the following classification of prospective consumers is reasonable:

Residential	90
Navigational river lights	26
Government installations	7
Small commercials	16
Industrial commercial consumers	3
Total	142

NATURE OF PRESENT AND INDICATED FUTURE CONSUMPTION OF ELECTRICITY AS REVEALED BY THE SURVEY

A tabulation of the data secured from the respondents revealed the following monthly consumption figures:

TABLE I

INDICATED MONTHLY KWH CONSUMPTION

Consumer Group	Present	Future	Percent Increase
Burrwood Residences 1/ (17)	90	109	21
Pilottown Residences (13)	35 2/	79	125
Weighted average			
All residential respondents (30)	66	96	45

1/ Residents at Burrwood receive electric service from the U. S. Engineer Department's generating plant located there.

2/ Residents at Pilottown have their own home electric plants or receive service from a neighbor's plant. If the appliances that the respondents stated they had on hand were convertible to central station service, the indicated present consumption would be as shown.

Historical consumption records of the residents at Burrwood were not available for the period prior to December 1949. Therefore, it is not possible to develop a consumption trend over the full number of years that central station service has been available there. The records that were available revealed an average consumption of 108 kwh per month in 1951, an increase of 21 percent over the 1950 average. Also, the attained 1951 average is 20 percent above the indicated present average based on replies from respondents in this group. It appears that the appliances are being used to a greater extent than is considered average for the entire country. Two reasons contribute to the higher than average use of appliances in this community. First, the normal compulsion to conserve electricity is lacking because of the extremely low rate charged by the U. S. Engineer Department. Second, since the area is relatively isolated, the residents live a rather lonely life; to help break the monotony and loneliness, radios are left on almost continuously.

Since residents at Pilottown receive electricity from small home electric plants and service is not metered, development of consumption trends based on past performance is not possible.

Saturation of electrical appliances and equipment, measured in terms of the percent of respondents presently having them and a corresponding percent anticipated in the future, was compiled from field schedules. The difference in saturation as revealed by the increase in percentage points was converted to future kwh requirements per 100 consumers for each piece of appliance and equipment. This tabulation is shown in Table II.

TABLE II

PRESENT AND INDICATED SATURATION OF ELECTRICAL APPLIANCES AND EQUIPMENT, AND CORRESPONDING ESTIMATED INCREASE IN KWH USAGE

Appliance or Equipment	Percent of Consumers 1/		Increase 2/	
	Presently Using	Indicating Future Use	Percentage Points	KWH Usage (per 100 consumers)
Clock	13	17	4	72
Drill Press	0	3	3	36
Fan (Central Hot Air Circ.)	3	3	0	---
Fan (Household)	27	43	16	240
Fan (Window)	30	50	20	1,000
Freezer, Cabinet	10	23	13	11,700
Food Mixer	10	23	13	325
Heating Pad	3	3	0	---
Hot Plate	17	20	3	210
Iron	73	90	17	1,700
Ironer	3	7	4	480

Appliance or Equipment	Percent of Consumers 1/		Increase 2/	
	Presently Using	Indicating Future Use	Percentage Points	KWH Usage (per 100 consumers)
Lighting: House	100	100	0	---
Other buildings	7	10	3	36
Yard	7	7	0	---
Power Saw	0	3	3	75
Pressure Water System	3	3	0	---
Radio	80	97	17	1,700
Refrigerator	40	73	33	11,800
Roaster	10	13	3	1,440
Sewing Machine	7	7	0	---
Soldering Iron	3	7	4	60
Television Receiver	3	7	4	1,440
Toaster	43	73	30	1,050
Tool Grinder	0	3	3	75
Vacuum Cleaner	13	20	7	140
Waffle Iron	13	20	7	175
Washing Machine	60	93	33	1,155

1/ Includes all residential respondents.
2/ Based on average energy requirements determined by REA. Data do not reflect instances where more than one of the same appliance exist per consumer. These cases are rare and do not affect the over-all pattern materially.

PHYSICAL CHARACTERISTICS

The service area is composed of scattered settlements along the banks of the mouth and passes of the Mississippi River below Venice, Louisiana. The topography is very flat, rising only a little above sea level. Although the alluvial soils are rich, they are not suitable for cultivation, primarily because they are poorly drained. Mild climate prevails the year round. Over a 30-year period, temperatures for January averaged 57 degrees; for July, 83 degrees. The growing season averages 353 days. Annual precipitation averaged 57.31 inches and was fairly evenly distributed over the 12 months. The area is subject to hurricanes, but in the past damage has rarely been extensive. Vegetation cover is mostly marshy grasses and bushes.

Considerable oil and gas pools are believed to exist in the delta region and the coastal waters. Some development of these resources has been accomplished. Fur-bearing animals and seafood abide in the area.

ECONOMIC CHARACTERISTICS

The proposed service area is unique in many respects. Since no roads or railroads are in the area, all travel is accomplished by boat. Except for a few cattle being grazed along the river banks, no farming enterprises are conducted in the area. The major private industry is in connection with the exploration and development of the oil potential. Some fishing and trapping is done by year-round residents. Licensed pilots, who are engaged to navigate ships through the passes and river channels below New Orleans, maintain quarters at Pilottown. Several government agencies have operations in this delta region. The economy of the area is rather simple, and the opportunities for applying electricity to productive uses are quite limited.

The major source of income is employment with one of the government agencies, or with one of the oil companies operating in the area. A few people are employed by the pilot association to maintain the quarters at Pilottown. People who are native to the region and who are employed temporarily or on a part-time basis engage in fishing and trapping to supplement their incomes.

ANALYSIS OF FUTURE KWH CONSUMPTION

Practically all of the residents of Burrwood are employed for at least part of the year by one of the Government agency installations. Most of the permanent personnel live in Government owned houses on Government property. As an added inducement to attract and keep qualified personnel, electric power is made available for home use at rates admittedly far below the cost of producing and distributing it. A flat rate of 3.5 cents per kwh is charged all residents in the Burrwood area. Even though dependable electric power at very low rates is available to them, they have not attained a very high level of consumption. In 1950 the monthly consumption average for all residences was 89 kwh; in 1951 it increased to 108. The attained average of 108 kwh per month is about 20 percent above the indicated average based on the appliances that the respondents stated they had on hand. Therefore, it would appear reasonable to assume that future consumption may be as much as 20 percent higher than that indicated by the respondents. The adjusted future consumption, as indicated by respondents to be attained in 3 years following energization, is 130 kwh per month.

The residents at Pilottown do not now have central station service. Based on the appliances they stated they would have within 3 years after receiving service, the expected average consumption would be 79 kwh per month.

An average future consumption for all residential consumers of 96 kwh was computed by properly weighting the two groups. In order to reflect the higher than normal use of appliances in this isolated area, an adjustment of 20 percent as indicated above was made. The adjusted weighted average is 115 kwh per month.

TABLE III

CLASSIFICATION OF APPLIANCES AND EQUIPMENT ACCORDING TO INDICATED USAGE

Appliance or Equipment	KWH Requirement Per 100 Consumers	Percent of Total Load
Household Use	114,476	99.8
Refrigerators	26,388	23.0
Lighting	24,000	21.0
Freezer Cabinet	20,970	18.3
Radio	10,670	9.3
Iron and Ironers	9,804	8.5
Roaster	6,384	5.6
Washing Machine	3,266	2.8
Toaster	2,566	2.2
Fan (Window)	2,500	2.2
Television Receiver	2,412	2.1
Miscellaneous	5,516	4.8
Shop	262	.2
	114,738	100.0

It is expected that nearly all of the electricity to be consumed by the residents will be for household purposes. Although only three-fourths of the respondents indicated they planned to have electric refrigerators, it is expected that this appliance alone will account for one-fifth of the total load. Lighting and cabinet freezers will account for another fifth each.

Because of the mild climate it is believed that refrigeration and house cooling appliances will be used more widely than was indicated, especially at Pilottown. No television receivers were noted at Burrwood, and the appraiser was told that the reception from New Orleans was almost impossible. At Pilottown reception is poor but at least one set was in use.

No electric ranges were noted in the survey, nor did any of the respondents indicate they would change from their present method of cooking. LP gas and kerosene are widely used for cooking. Six of the eleven respondents who are now using LP gas or kerosene type refrigerators plan to change to electric refrigerators. House heating is normally not a problem, but nearly all houses are equipped with kerosene or diesel fuel stoves.

The employees' homes, as well as the other buildings, at Burrwood are owned and maintained by the Federal government. This fact presents a problem regarding the expense of adequately wiring houses in order to accommodate the necessary voltage to operate such appliances as electric ranges. If the U. S. Engineers take the position that the resident employees who desire to use high voltage appliances should pay for the necessary wiring, it could prove a major deterrent to a greater use of electricity.

In the preliminary load analysis prepared by the consulting engineers, a monthly consumption average of 350 kwh was used in computing the total load. The appraisal reveals that this figure will not be attained for several years.

Of the 142 prospective consumers, 26 are U. S. Coast Guard navigational lights along the river and passes. In computing the total kwh load, the consulting engineer estimated for each of the lights an average of 15 kwh per month. There is no reason to believe that an increase in this type of consumption will occur.

Data concerning 13 prospective large power consumers were gathered and submitted with the loan application by the Association's consulting engineering firm, Bedell and Nelson, 840 Union Street, New Orleans, Louisiana. Listed below are each with the engineer's estimated KVA demand and kwh consumption.

	Estimated KVA Demand	Estimated Annual KWH
1. Texas Company, Pilottown	150	61,200
2. Bar Pilot Station, Pilottown	20	108,000
3. River Pilot Station, Pilottown	20	108,000
4. Texas Company, Garden Island Oil Field	260	975,600
5. Coast Guard, Head-of-Passes	10	14,400
6. Shell Oil Comapny, Southwest Pass	50	60,000
7. U.S. Engineer Department, Burrwood	56	233,400
8. Weather Bureau, Burrwood	25	31,200
9. Bar Pilot Station, Southwest Pass	12	34,560
10. Coast Guard, Southwest Pass	30	43,200
11. Pilot Station, South Pass	14	58,800
12. Coast Guard, South Pass-West Jetty-Range Front	45	94,452
13. Coast Guard, South Pass, Range Rear	10	14,400
Total		1,837,212

The proposed line will follow the east bank of the Mississippi River across from Venice, Louisiana, down to Pilottown, and then on to Burrwood on Southwest Pass. Most of the consumers would be near the proposed line; others will require long extensions to serve. This is particularly true in the following cases: The Texas Comapny's Garden Island Oil Field, Bar Pilot Stations at South Pass and at Southwest Pass, and the Coast Guard Lighthouses at South Pass and at Southwest Pass.

RELATED OBSERVATIONS

The initial negotiations for a loan to serve this area were conducted with the Peoples Utility Company, the controlling interest of which is owned by Mr. J. E. Potthorst. The formation of a cooperative association to borrow funds to build the necessary distribution system was a result of the failure of consummating a loan agreement with the Peoples Utility Company. Much of the promotional work in connection with the formation of the Association, and with the entire project, has been carried on by Mr. Kenneth C. Barranger, Attorney, Hibernia National Bank Building, New Orleans; Bedell and Nelson, Consulting Engineers, 840 Union Street, New Orleans; and Mr. John Kennedy, Assistant Chief of Operations, New Orleans District, U. S. Engineer Department. Mr. Barranger is the attorney for Peoples Utility Company, which is one of the contemplated sources of power.

The interest in the project displayed by the U. S. Engineer Department stems primarily from the fact that the cost of generating their own electricity is exceedingly high. The generating capacity of the plant at Burrwood exceeds their station requirements; therefore, electric service at very nominal rates have been made available to residents in the immediate vicinity. Officials of the U. S. Engineer District Office indicated that agreements, by which the Association may acquire the distribution lines at Burrwood, could be worked out. In the event the proposed system becomes an actuality, residential rates unquestionably will be raised considerably if this consumer class is to bear an equitable portion of all costs. Any increase in rates naturally will be met with considerable disfavor by those consumers now receiving central station service at nominal rates and it is conceivable that they might cut back their use of electricity rather than add appliances.

The appraiser believes that any savings in the cost of power to the U. S. Engineer Department will depend primarily on (1) the extent to which increased efficiency of operation can be realized from serving all prospective users in the area by an over-all system and (2) the extent to which the costs could be shifted to other users on an equitable basis.

Among the important problems which are likely to affect successful development of the proposed system are: (1) The limited number of potential consumers and the relatively small indicated consumption by residential consumers; (2) absence of contractual agreements assuring that large oil companies will take electric service and in the amounts stated in the loan application (feasibility would be doubtful without their taking service); (3) the need for special line construction to withstand the weight in swampy areas (telephone line construction and experience in the area provide proof that special pole construction is required).